ACCESSION OF CEE-STATES TO THE EU

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ABSTRACT

The expansion of the market economy sphere is the core phenomenon of globalization. The pattern of integration of emerging and former state-planned economies into the world economy is quite different. This paper focuses on the CEE economies acceding to the EU (15) and investigates two aspects. Up to the end of the decade these countries will be fully integrated in the biggest and one of the most developed economic areas. The structural adjustment is the major challenge to be met by an adequate economic policy. The first aspect focuses on the Balassa-Samuelson effect, which in the literature is described as one of the obstacles for the transition process after the introduction of the Euro in the CEE countries, because higher inflation rates can no longer be outweighed by a currency adjustment. The empirical investigation discloses that the traditional Balassa-Samuelson assumptions do not hold and that the inflation induced by productivity gains in the tradable goods sector is no longer an obstacle for the participation to the monetary union. The second aspect focuses on the integration of the CEE countries into the world economy, which cannot be based on low-wage competition, because they will be full members of the EU. The structure of foreign trade of the CEE countries and the EU are compared. The latter is used as a benchmark and differences make visible the necessity of a structural change. In recent years the competitive pressure for CEE countries has strongly grown. Exchange rate variations have become a major challenge, in particular the depreciation of the Renminbi, the PR China's currency. In combination with an indigenous deflationary tendency low-wage production of commodities in CEE countries, an important activity before the Iron Curtain broke down, has come under pressure by growing imports from the PR China. This development incorporates the threat to distort the fragile transition process, and the intensity of the problem is linked to the Chinese foreign exchange regime. It is suggested to give up the peg to the US-$ and link the Renminbi to a basket of globally important currencies to take into account the multilateral trade relations.

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INTRODUCTION

The expansion of the market economy sphere has been a driving factor for a decade. During the 1980s it was driven above all by the newly industrializing countries, who tapped into the global market. In particular the Asian NICs followed suit Japan. Their success incited global investors to further fund the industrialization and contributed to the high momentum growth of these countries. This development was accompanied by the cautious opening up of the PR of China's economy. At the end of the 1980s the breakdown of the COMECON resulted in another expansion of the global market economy sphere.

During the 1990s the global economy has been driven by intensifying interdependencies in goods and financial markets. The NICs' success has continued, even the Asian financial crises only dampened the dynamic development for a limited period. The integration of the PR China into the world economy has been markedly accelerated since the accession to the WTO. Immediately after the breakdown of the Iron Curtain the integration of CEE countries into the Western world has taken place. It has been pushed by the perspective to access the EU.

The CEE countries will access the EU and participate in the Single Market with its free movement for goods, services, capital and labor. Ten countries will join the EU already on 1 May 2004, among them with the Czech Republic, Hungary, Poland, Slovak Republic the bigger economies. Further on it is obligatory that these economies have to join the European Monetary Union (EMU). This means that many of the structural differences between the acceding countries and the current EU Member States have to be leveled out within a couple of years, otherwise there is an enormous risk of default.

This paper focuses on the process of transition of the former state-planned economies to market economies and the catching up to the level of current Member States. The remaining short period of convergence is a challenge to the governments of the acceding CEE-states as well as the mature EU economies. The empirical analysis discloses the changes in the CEE-

economies since the mid-1990s – after the period of distortions of the economies induced by the breakdown of the COMECON. The conceptual approach is based on the Balassa-Samuelson-Model that provides an explanation for the real appreciation of emerging countries' against mature countries' currencies in course of this process of convergence. The investigation in the pace of transition and its driving factors during the latter half of the 1990s provides insight in the development and serves for an assessment of the future development. The CEE countries are not granted an opt-out clause from the European Monetary Union. The requirements of the Exchange Rate Mechanism (ERM) will be discussed in this respect. In particular the inflationary pressure, as a result of the Balassa-Samuelson effect endangers the ongoing process of convergence after the accession to the EMU.

The transition of the CEE countries and their accession to the EU is different from the industrialization of Asian economies. These countries will be integrated not only in a free-trade area, free movement of goods, services, capital and labor will stimulate a convergence of the standard of living. Moreover this development is an explicit political objective and has an impact on the position of the CEE countries in the global economy, because they will not be able to be competitive as a location for low wage production against most of the emerging countries. This challenge is analyzed by an investigation of foreign trade. The trade of CEE countries and the EU (15) with the PR China is taken as an example. Differences in the structure of trade are used to identify the backwardness of CEE economies and the necessity to shift production towards high-value added goods.

CEE ACCESSION AND THE BALASSA-SAMUELSON EFFECT

Traditional Balassa-Samuelson Model

The basic ideas of the economic relationship of emerging and mature countries are rooted in scientific papers of the 1940s. In the beginning the subject was linked to the question of a justified exchange rate that was of major importance during a period of fixed currencies. In a groundbreaking paper Balassa carried out a reappraisal of the purchasing power parity doctrine.[1]

In a comparison of the US and European countries he found systematic differences, which lead to an overvaluation of the currency of the more advanced US-economy as prices in non-traded goods and services are compared. The stylized facts of this investigation show an overall higher labor-productivity in the more advanced countries in all sectors. A discrimination of the economies in two sectors that supply tradable or non-tradable goods and services discloses a strong lead in the productivity of labor for the manufacture of tradable goods. But in the sector of non-tradable goods and services the lead of the more advanced country is much less pronounced. With respect to this fact the currency of the country with the higher productivity will (tend to) be overvalued in terms of purchasing-power parities, given that prices for tradable goods in global markets are equal, calculated in nominal exchange rates.

The explanation for the discrepancies between both of the sectors in productivity emerges from the fact that the production of most tradable goods are suited for process innovation whereas technical and organizational progress is limited for non-tradable goods, in particular services. As a result labor productivity and gains in labor productivity are lower in the sector of non-tradable goods.

The Balassa-Samuelson model for emerging countries catching up the lead of mature countries has been based on the assumption that there exists a global price for tradable goods. The integration of emerging countries into the world economy has been characterized by the introduction of advanced production processes in the tradable goods sector, and consequently strongly growing labor productivity induces wage increases. Via a functioning labor market there has been a transmission of these wage rises to employees of the non-tradable goods sector, which possesses fewer opportunities to increase labor productivity. Therefore prices are growing at a higher rate in the non-tradable goods sector. This means that there is a systematic higher inflation rate in emerging economies, which - in the long-run - induces a real appreciation as measured by the consumer price index, as applied as indicator for the inflation in the non-tradable goods sector.[2]

Adjustment of the Balassa-Samuelson Model

The reasoning for the Balassa-Samuelson effect is linked to the assumption that the non-tradable goods sector is characterized by production processes which cannot or not easily be automated. In particular services, which are labor-intensive, are not open to automation and productivity gains similar to the tradable goods sector. This reasoning is questionable in the world of the so-called "New Economy" where information and communication technologies (ICT) incorporate the potential to also increase efficiency in service sectors. Additionally new structures in industrial organizations can be applied for the supply of services, for trade and logistics. They contribute to higher labor productivity.

Growth in labor productivity is no longer limited to the introduction of new production processes for the manufacture of physical goods, but labor productivity can also be increased in other companies' functions, such as administration, marketing etc., by the introduction of advanced ICT. Beyond technologies, management techniques are relevant factors for the explanation of progress in labor productivity. This means that an emerging country's progress is dependent not only on investment in machinery and equipment but also in the transfer of up-to-date know-how and suggests that the traditional patterns for the evolution of emerging countries need not be relevant today. It is assumed that the discrimination between one sector of tradable and another of non-tradable goods does not suit to the up-to-date framework conditions for emerging countries, because high productivity gains in the production of tradable goods and moderate price increases on the one hand, and meager productivity gains and prices for non-tradable goods growing with a higher momentum on the other hand will be no longer necessary patterns of emerging countries catching up mature industrialized economies.[3]

In this paper the working hypothesis is pursued that tangible and intangible investments are more of importance for the explanation of productivity gains in a sector than discrepancies in the production technology. This means for countries that are catching up the lead of mature economies in productivity the investment in new production technology and ICT, as well as the transfer of know-how and management techniques, are decisive. These driving factors can be

procured by emerging countries' companies on their own, but in the contemporary global economy the process of catching up has gained momentum and is above all propelled by foreign direct investment (FDI). Taking into account that by the application of advanced ICT even service industries can enjoy high productivity gains it is proposed to modify the Balassa-Samuelson model.

There are industries that enjoy strong foreign involvement. In conjunction with FDI companies get access to financial resources and know-how. By this they obtain the ability to raise productivity. In opposite industries that are not in the focus of foreign investors – lack of capital and know-how - and are not able to keep the pace of progress in other industries. Therefore it is suggested to create two different sectors of industries by the criterion of the level of foreign involvement as measured by FDI. One sector with high FDI inflow productivity growth is the driving force of the catching up process of emerging countries, wages and salaries follow suit. Via the labor market the development of wages is transferred to the second sector, which does not enjoy the influx of liquidity and know-how. This sector cannot compensate for growing labor costs by sufficient productivity gains. As a consequence output prices increase stronger than in the other sector.

To summarize the adjustment of the Balassa-Samuelson model there are two variations suggested. First there is no longer a clear difference between a sector of tradable and non-tradable goods in the development of productivity and prices. A more suitable criterion for the discrimination of sectors with different developments for both of these indicators is foreign involvement. The potential for productivity gains is no longer incorporated in industrial production processes. Under recognition of the productivity potential incorporated in ICT all industries can exploit noteworthy productivity gains, the ability to utilize them is strongly dependent on the resources, above all provided by foreign investors.

As a consequence of this variation of the Balassa-Samuelson model the higher inflation rate observed in emerging countries that are catching up is not necessarily induced by higher price increases in the non-tradable sector in particular in the area of private consumption. The

higher inflation rate is above all driven by FDI that neither simultaneously nor with comparable intensity affects all industries.

Empirical Results on CEE Countries' Transition Process

The investigation in the development of CEE by sectors was confronted with two problems, the distortions during the early 1990s had to be excluded from consideration and the statistical data base is poor. The most comprehensive disaggregated statistics were provided by the Czech and the Hungarian national statistical bureaus. Therefore it was decided to stick to both of these economies, which belong to the more advanced, but nevertheless show noteworthy discrepancies. Hungary has a long-standing experience in a market driven economy and close linkages to Western Europe, which started during the early eighties, long before the breakdown of the Iron Wall. One of the peculiarities of the Hungarian economy is the high importance of the agricultural sector and it has become a net-exporter of agricultural products to the EU. The production of primary products and heavy industry has not a major stake in the Hungarian economy. The structural peculiarities of the Czech Republic are quite the opposite. The country suffers strongly from over-capacities in the basic manufacturing industries.[4]

Moreover, Hungary was early to take off in market liberalization, whereas the Czech Republic is a late-runner in liberalization, in particular in labor markets and corporate governance, which to a certain extent had an impact on foreign involvement in the Czech economy, although you cannot find significant evidence if you compare the amount of foreign inward investment with other countries of the region. One of the obstacles was privatization by vouchers and national pension funds, who – within a short period – often gained the majority in companies' stakes. Their policy was less directed towards profitability but to maintain the level of employment. In line with a loss of competitiveness the Czech Republic suffered a recession during the late 1990s but recovered soon, after the regulatory system was improved and some of the problems, which made foreign companies to refrain from investment, have been abolished. Moreover since that time the Czech Republic provides noteworthy subsidies to foreign investors,

similar to other governments of the regions.

One of the major problems of the Hungarian transition process is high inflation which endangeres the price competitiveness of plants in phases of relative stable exchange rates. In opposite, price stability of the Czech Republic is an icon of the Czech economy in comparison with other transition economies. Therefore it was decided to focus on both of these countries as examples for the economic transition process in the region.

In a first step the discrimination of industries as suggested by Balassa-Samuelson which supply tradable or non-tradable goods was carried out. The ratios of the industries' exports by their total production values were taken as indicator to identify industries which belong to the tradable and the non-tradable sector. As criterion for the discrimination a threshold value of 30% for the export ratio was taken. It provided a plausible result. Most of the manufacturing industries fit in the tradable goods sector. One important exception was the food, beverages and tobacco industries. Other non-tradable industries are agriculture, mining and quarrying.

The export orientation of the industries shows similar patterns for the Czech Republic und Hungary, as measured by the export ratio. Of outstanding importance for both of these countries are the exports of the metal working industries, in particular machinery and equipment. One noteworthy exception exists for the food, beverages and tobacco industries. While the export ratio for the Czech Republic is below 10%, it comes close to 30% in the case of Hungary, but it remains below the discrimination threshold.

The utility industries, in particular electricity have been – by the application of the criterion of 30% for the export ratio - a tradable goods' industry, because its share is somewhat higher. But it was decided to exclude this industry from the further analysis, because it is a highly regulated market and by its framework conditions close to non-tradables. The share of the defined tradables on total value added of the Czech Republic was about 28% in 2001 and 22% for Hungary.

For both of the countries time series have been made available for a period of eight years to analyze labor input, wages, output and prices. The Czech data base contains figures for 1994

to 2001. The Hungarian data are for 1993 to 2000. The time span under consideration is sufficiently long to identify patterns in the development.

For all of the period both of the sectors in the countries under consideration disclose a relative development which is in accordance with the patterns of Balassa-Samuelson. Labor productivity in the tradables sector strongly grew during that time, whereas in the non-tradables sector labor productivity even declined. The labor costs – as measured by the monthly gross wages – in both of the sectors grew at a similar pace. As a result prices for non-tradable goods and services shot up. For the Czech Republic the average annual rate of growth came up to around 10% and for Hungary up to 19%. The difference was in line with the higher wage trend in Hungary. (Table 1)

Both of the sectors are heterogeneous and contain quite different industries. But even a closer look to individual industries reveals similarities within each of the sectors. For non-tradables a more homogenous sector was defined, the market service sector. Trade, hotels, restaurants, transports, communication, telecommunication, real estate and other business services were put together. For tradables a subsector was created by merging capital goods industries, machinery and equipment, electrical and optical machinery and instruments, transport equipment which are linked by an intense inter and intra-industrial division of labor. Moreover these industries show the strongest growth in exports over the period under investigation. Both of these more homogeneously defined sectors show similar relative developments as the broader sectors for wages, productivity and prices. The patterns for the Czech Republic and Hungary over time support Balassa-Samuelson. (Table A1 and A2)

For the Czech Republic a differentiation of the period under investigation discloses some changes in patterns of the development. During the early years the non-tradables sector suffered a setback. During the three years 1995 to 1997 real output shrank by an annual rate of 1.4%, those branches of the non-tradables which provide market services even by more than 6%. The years after on average of the related service industries - stabilization took place. While financial intermediation further declined, because of growing indebtedness of firms, trade, transport and

telecommunication experienced a turnaround. Their average growth rates of real output for the four years 1998 to 2001 exceeded 3%. (Table 2)

The tradable sector experienced a different development. In the three years 1995 to 1997 the real output grew by 8.1% per annum. The years after the growth momentum shrank to an average yearly rate of 5.5%. The capital goods industries enjoyed an even more dynamic development of 19.5% and 9.5% respectively for both of the periods under investigation.

With regard to these extreme discrepancies in the development of both of these sectors it must be suspected that much of the differences in the evolution of the labor productivity are contributed to growth differentials. In fact the growth of labor productivity in the tradable goods sector became more moderate in the more recent years, while the non-tradables sector made some progress. In particular in trade productivity grew by an average rate of 7.1% in the more recent period under consideration.

In opposite to that result a discrimination of the period under investigation for Hungary does not provide any evidence for a changed pattern in the process of transition. Although output growth of non-tradable goods accelerates somewhat, labor productivity does not increase, only the sector transports and telecommunication progresses a little. (Table A3)

Summarizing the results so far, the dynamic elements of emerging countries, catching up the state of development of mature economies affirm the findings of Balassa-Samuelson. There has been no evidence for the working hypothesis that the availability of new technologies, namely information and communication technology, which have contributed to productivity growth in mature countries' service industries, in particular during the latter half of the 1990s, have had any effect so far in the transition process.

Impact of FDI on Changes in CEE Countries' Transition Process

Foreign companies play an important role in the process of the acceding countries' transition process.[5] They provide the means for the renewal of the capital stock, the know-how on advanced technologies and management techniques, necessary for a high-speed process of

catching up the lead of the mature western European nations. During the 1990s inward investment soared in a broad range of industries. In particular foreign direct investment in manufacturing industries took the attention of the broad public, and the relocation of production was high on the agenda in the economic political discussion.

A close look revealed that most of the inward investment in the Czech and Hungarian economies was not targeted to export industries but to industries, which provide goods and services for the indigenous demand. Roughly three quarters of FDI were bound for the non-tradables sector and the rest for the tradable goods sector. This distribution is close to the share of both of these sectors' shares in total GDP. Moreover the amount of FDI per employee for the period 1994 to 2001 was of similar size in both of the sectors. In market service industries the FDI per employee was even higher than on average of the tradable goods sector.

For the Czech Republic the inflow of foreign capital has shown a different pattern over time. FDI in the tradable goods sector for capital goods industries, reached an annual average level per employee of 12.226 CZK for the years 1994 to 1997. For the years 1998 up to 2001 it came up to a mean value of 65412 CZK. In the non-tradable goods sector the take off of FDI was somewhat delayed. During the early years the FDI per annum was only 4.959 CZK for market services and increased up to an average value of 57102 CZK. It can be assumed that for the Czech Republic – a late runner in the transition process – compared to others but in particular to Hungary, the regulatory framework conditions and the privatization of the big utility companies and state-owned banks was more complicated and had an impact on the inflow of foreign capital. (Table 3)

There have been no sufficiently long time series on inward investment for Hungary. It was not possible to investigate if there has been a similar development. But the transition in Hungary started earlier and there is some likelihood that a delay of FDI inflow to the non-tradables sector did not take place in the period under consideration.

The high growth momentum of the transition countries has driven above all the tradable goods industries. It could have been assumed that the comparably high inward investment in

both of the sectors had an effect on growth. But there was a major discrepancy for both countries. While the tradable goods sector enjoyed high growth rates of real output, the non-tradables sector even shrank in the Czech Republic and only grew moderately in Hungary.

The FDI directed towards the tradable goods sector is - at least to a noteworthy share - dedicated for investment in production capacities which will manufacture goods for international markets. This assumption is underscored by the development not only of the tradable goods sector's growth, but by – since the mid-1990s - soaring exports. On the opposite the FDI in the non-tradable sector is dedicated above all for the indigenous demand. This means that strategic objectives of foreign companies tend to differ if they invest in the one or the other sector. It can be assumed that FDI directed towards the non-tradables sector is primarily dedicated to the purchase of market shares, whereas the primary objective of investment in the tradables sector lies in the exploitation of comparative advantages of the location for production.[6]

Foreign investment in the tradable goods sector tends more towards vertical FDI which is aimed at the decomposition of a company's production.[7] The launch of new and the revamping of existing production sites in CEE is bound for the creation of efficient manufacturing processes and the exploitation of the region's advantages in relative labor costs.[8] Much of the FDI has been spent for the procurement of machinery and investment, necessary to improve efficiency and quality of products. As a result labor productivity and output soars shortly after the initial investment in the tradable goods sector has been carried out.[9]

Additionally there is much likelihood that productivity gains have not been enjoyed only by foreign owned companies in opposite to some empirical available studies.[10] The focus of FDI was in the metalworking industry, a segment of the manufacturing industry, which is marked by an intense division of labor between companies. High performance final products require the input of technologically advanced and high quality intermediary products.[11] Full exploitation of a regions comparative advantage in these industries requires a dense network of experienced subcontractors and a qualified staff. Thus for a big part of the Czech and Hungarian

manufacturing industries – 57% and 52% respectively as measured by the share of the metal industries in total value added of manufacturing - the creation of a cluster is of major importance.[12] Foreign owned companies are interested in local subcontractors and put high requirements on manufacturers of intermediary products. There is a demand push which stimulates the upgrading of domestically owned firms.[13]

Foreign investment in the non-tradable goods sector tends more towards horizontal FDI, which is aimed at the penetration in new markets. This tendency is not only caused by the goods' or services' de facto attributes to be not tradable, but caused by regulation of market access or by the existence of indigenous monopolies, former state-owned companies which have been or will be privatized. Foreign investors are above all interested in distribution networks and access to the clients. Although the countries under investigation will access the EU in May 2004 many of the markets put together in the non-tradables sector will not be opened to EU wide competition immediately. The barriers to foreign suppliers will only be abolished in course of the forthcoming years. Companies cannot wait that long, they have to acquire available firms.

Putting the pattern of direct and indirect investment together, it becomes obvious that a high portion of the amount of FDI inflow into the tradables sector is spent for the purchase of machinery and investment, even if it is not a greenfield investment but an investment in an existing company. The economy's capital stock dedicated for production grows. In the non-tradables sector a high portion of the FDI inflow is paid for an existing company, which is valued by its market access. The economy's capital stock is not necessarily affected, because much of the amount is dedicated for the exchange of assets and not for physical investment and the renewal of equipment. This is why CEE countries have a strong interest in direct FDI in the tradable goods sector and provide bigger incentives to investors who create workplaces, training etc. than in non-tradables.[14]

Further to the discussion of the different patterns of direct and indirect FDI it is obvious that indirect inward investment will not result in an immediate improvement in production.[15] Most important are initiatives to get a foothold in the market. It even can be assumed that

investment in more efficient processes will be delayed – at least in some markets - until barriers to access will be reduced and competition will become tougher.[16] Perhaps it is too early to find evidence for productivity gains in the non-tradables sector as suggested in the working hypothesis, although there was an inward investment of comparable intensity as in the tradables sector.

Economic Development within the Tradables and Non-tradables Sector

The overall analysis of both of these sectors disclosed a development that supported the findings of Balassa-Samuelson. A more detailed investigation reveals within each of these sectors divergent developments. There are growing industries in the non-tradables sector, such as transports and telecommunication, real estate and business services in Hungary, transports and telecommunication and construction in the Czech Republic. Other industries decline, the most severe breakdown was suffered by the Czech banks. The industries of the tradables sector show only few declining industries, most of them grew. Most dynamic expansion showed the manufacture of electrical goods, transport equipment as well in Hungary as in the Czech Republic, with average yearly rates over the whole period under consideration of 33% and 18% respectively. In contrast to the output of the chemical industry in Hungary and the manufacture of basic metals in the Czech Republic. (Table A4)

More important with regard to Balassa-Samuelson is the divergence in the development of labor productivity within both of these sectors. For instance labor productivity of the Hungarian retail and wholesale trade as well as the transport and telecommunication industry show noteworthy growth rates, whereas for others productivity declines. In contrast, within the tradables sector the chemical industry's labor productivity shrinks. For the Czech Republic similar intra-sectoral differences have been made visible by the statistics. As explanatory variables for the heterogeneous development within each of these sectors, growth and the access to financial means and know-how by FDI were tested. (Table A2)

The results support that there is an impact of growth on labor productivity. There is not

only evidence for industries in the tradables sector, even in the non-tradables sector, the correlation coefficient is positive and indicates that there are some opportunities to increase efficiency, at least by the exploitation of economies of scale. The impact of growth on the development of labor productivity is conventional wisdom[17], and it can be assumed that at least to a certain extent the discrepancy between the tradables and non-tradables are contributed to differences in the growth momentum. (Table 4)

There was a strong growth of labor productivity in the beginning of the period under investigation. The more recent years under consideration disclose a moderation in the increase of efficiency. This is prominent for the Czech Republic with a delay in transition in comparison with Hungary. In particular for the metal working industries the Czech tradables sector shows extremely high productivity growth rates in the beginning and a marked slowdown later on. The sectoral pattern for Hungary has been similar the productivity gains in the metal industries are highest, compared to other industries. A deceleration in the pace of productivity growth took place, but it was less pronounced.

Most studies which refer to the Balassa-Samuelson effect do investigate the validity of basic assumptions on labor mobility, competitive labor markets and purchasing-power parity (PPP) and try to find evidence for productivity differentials, and the evolution of relative prices and wages.[18] Although there is a broad scientific literature with a focus on Balassa-Samuelson, in most publications the impact of growth on productivity has not been taken into account as an additional exogenous variable with explanatory power for the productivity differential between the tradables and non-tradables sector. The empirical studies focus on evidence for the traditional assumptions and try to verify the assumption that there is a lack in opportunities to increase labor productivity in non-tradables.[19] But in the era of the "New Economy" just this has become questionable, although this paper failed to give support to the author's initial assumption.

The Impact of Labor markets on Wage Equalization

Labor mobility and competitive labor markets are crucial elements for the Balassa-Samuelson model. But it is questionable if there is a sufficiently high cross-sectoral migration of workforce. De facto different sectors require different qualifications, even in the area of blue-collar workers. Moreover different levels of qualifications link up with divergent wage levels and impede mobility.[20] The results have been confirmed for both of the countries. The variance of wages is highest in the non-tradables sector, where the average level in the industry with the highest wage doubles the average wage in the industry at the opposite end of the ranking. This result has been caused by the extremely high wages above all in financial intermediation. In the tradable goods sector average wage disclose remarkable differences but variance is much lower. Even the metal industries, with their homogeneous qualification requirements in production, research and development, average wages differ up to 20%. (Table A2)

It is a matter of fact that average wage levels differ between industries. More important is the development over time to get an impression on the functioning of the labor market. The evolution of wages discloses growing wage differences between the industries of each of the sectors. The high wage industries show high growth rates. This result could be in line with a structural change towards industries with higher qualifications and higher wages. But analysis shows that for neither of the sectors the high wage industries are growing, moreover for the non-tradables sector there is a negative correlation between wage increases and output growth on the one hand and productivity gains on the other. (Table 1)

Generally speaking, within the tradables sector the economic indicators comply better with theory. Productivity gains and output growth stimulate wage increases. If one takes labor productivity and wages as a first approximation for marginal revenues of labor and marginal labor costs relation suits to the expectations. The positive correlation of wages and output growth indicates scarce labor supply for expanding industries.

These results indicate that – if at all – there is some evidence for the Balassa-Samuelson assumptions on the labor market only for the tradables sector, but in no way for the non-

tradables sector. This indicates that the transmission of wage rises in some industries to others is not a result of functioning labor market, but of wage settlement procedures which trust in collective wage agreements between unions and entrepreneurs' associations. Such cartels tend to bargain the income distribution among members and labor mobility is impeded by wage contracts which provide occupation guarantees - most frequent - dependent from the employment duration.

Within such a framework sectoral discrepancies in the bargaining power will be more of importance for an agreement on wage raises and the explanation of inter-industrial differences. Further on the results suggest that in particular in the non-tradables sector such elements are more of importance for wage settlements than in the tradables sector. Additionally there is strong interest to keep the standard of living in relation to other industries which induces unions in the non-tradables sector to get at least wage raises than in the tradables sector with its productivity growth. For industries which are worse off and a poor bargaining power for unions there is a minimum requirement for wage agreements, to maintain the standard of living. As a result of such a non-competitive labor market there is a threat of a vicious cycle which endangers the international competitiveness. In fact wages grow stronger than productivity, not only in the non-tradables sector, but even in the tradables sector with its currently high productivity gains. This means that unit-labor costs grow even in industries which manufacture goods for international markets.

As a result some of the production in the tradables sector relocated to CEE countries only during the 1990s, has been relocated further eastward and to southeast of Europe. This has become a challenge for the more advanced countries in the region, in particular for Hungary. It can be expected that job creation in the tradables sector will lose momentum, because growth becomes more moderate in the years to come. In connection with some losses in low wage employment, this sector will not contribute much stimulus to the labor market.[21] This means that growth must shift towards the non-tradables sector and domestic demand has to play a bigger role in the future process of transition. Such a development will fit to the political objective of

the European community to increase the standard of living. It will only be successful if CEE countries succeed in the grading up quality of their products and in entering know-how driven markets.

Much of the high inflation was caused by the labor market institutions in connection with the productivity differential between the tradables and the non-tradables sector. Under the non-competitive conditions wage increases were too high, even in industries with strong productivity growth. If one assumes that there will be an ongoing moderation in output and productivity growth in the tradables sector, the factor driving wage settlements in the non-tradables sector to exceed productivity gains will be reduced and inflation will decelerate. But further efforts will be necessary to improve the functioning of the labor market, to stabilize unit-labor costs. After the accession to the European Monetary System CEE countries will no longer be able to maintain their competitiveness by a depreciation of their currencies.

The Balassa-Samuelson Effect

The empirical investigation and the discussion of scientific literature disclosed some doubts in the assumptions of the Balassa-Samuelson model. Above all the existence of a competitive labor market and inter-industrial labor migration is not realistic. In both of the countries under investigation the development of wages shows inter-industrial differences which have not been in accordance with conventional economic wisdom. It has been argued that cartelization of wage settlements is on the one hand a question of the bargaining power of the parties involved. There is lower bound for wage increases, the inflation rate, because one of the indispensable objectives in wage settlements is to maintain the standard of living. Another important objective is to keep up with the general expansion of wealth.[22] The transmission of wage increases is more an effect of market deficiencies than of a functioning market. This means that in fact strong productivity gains in the one sector affect the other sector, but the Balassa-Samuelson assumption does not hold.

Another important assumption of the Balassa-Samuelson model is based on the efficiency

gains in the tradables and non-tradables sector. Technological progress, automation and structural changes in industries and individual companies can be exploited in the manufacture of tradables goods, whereas in non-tradables and in particular in services such progress is limited. The application of advanced ICT, which above all has been applied in service industries, logistics and trade has enabled just these branches to raise efficiency in the non-tradables.[23] In this paper no evidence was found for Hungary and the Czech Republic, but for Germany, the country used as benchmark labor productivity grew stronger in the non-tradables than in the tradables sector during the period under investigation. (Table 5)

Although there are some doubts on basic assumptions of the Balassa-Samuelson model, the predict effects were found. The results are obvious for both of the CEE countries. The relationship between productivities and prices differentials does not only hold for all of the period under investigation (1994 – 2001) but also for the more recent years (1998 – 2001). However there was a remarkable change in the relative development of both of these sectors. The differential in productivity growth shrank much and in line with this evolution the price differential was reduced in comparison with earlier years (1994 – 1997).

As an explanation for this development it is assumed that much of the productivity potentials in the tradables sector have been exploited by foreign investors, who provided know-how and advanced production equipment to overcome the backwardness of industrial manufacturing in the CEE countries. Many of the companies in the transition countries caught up to the international state of the art, and further gains in productivity will be less easy to be utilized. Some support for this assumption is given by the fact that it is the metal industries that showed soaring efficiency gains during the early years and show a noteworthy moderation of the development in the more recent years.

These results indicate that the Balassa-Samuelson effect lost some of its importance and will further fade in the years to come.[24] This means that the diminished productivity gap will contribute to lower inflation rates. Already between 1998 and 2001 the relative productivity and price developments in the Czech Republic and Hungary are not far from the situation in

Germany.[25] This means that the Balassa-Samuelson effect – which is often quoted to pose a risk on an early accession of the transition countries to the EMU – will not be of noteworthy importance and does not require a specific exchange rate policy.

It is not the price level of non-tradables or the inflation of consumer prices which are a burden for an early accession to the EMU. It is the monetary and foreign exchange policy of Hungary, which endangers an early accession to the EMU, the combination of high macro-economic inflation rates whose negative impact on competitiveness have been outweighed by an exchange rate policy with a pre-announced crawling-peg regime since 1996. The policies behind this development must first be adjusted. The Czech Republic provides another picture. The macro-economic inflation is nearly in line with the requirements of the EMU and the Czech Koruna has become a stable currency during the more recent years, as a result of a managed exchange rate regime against the Euro and an inflation target for the monetary policy.[26] Although there have been some losses in price competitiveness the monetary performance and the foreign exchange suggest an early accession to the EMU.

The Accession of CEE-countries to the EMU

The ten new Member States, who will join the EU in May 2004, are not allowed to opt out the accession to the EMU. An early adoption of the Euro could pose a threat on the further economic development of the transition economies, because exchange rate policies to smooth the transition process will no longer be possible. Above all the adjustment of the economies' structures is linked to changes in relative prices as a result of changes factor productivities. This must be taken into account by monetary policy to prevent distortion in the process of transition and results – for most of the CEE countries – a loser policy and higher inflation rates.

One explanation for this higher inflation rate has been provided by the Balassa-Samuelson model. It suggests that there are structural differences between mature and emerging economies in relative prices and productivities. Due to the model transition countries, which catch up the lead of mature industrialized countries have higher inflation rates, until the gap is closed. This

process can be time consuming and require a delay in the adoption of the Euro. The empirical investigation showed that during early years of the transition the structural change and gains in productivity showed an extreme momentum, but slowed down during the latter years under investigation. Under the assumption that this is a trend the productivity differential between the tradables and non-tradables sector, which is responsible for higher inflation has been reduced to the levels for some of the less advanced Member States of the EMU. This indicates that there is no longer a noteworthy structural barrier to enter EMU from this Balassa-Samuelson effect.

Most other criteria as preconditions for the accession to the EMU are above all dependent on adequate monetary and financial policies.[27] This is quite obvious if one compares the development of the Czech Republic and Hungary. The Czech central bank pursues a more stability oriented monetary policy than the Hungarian central bank. As a result the foreign exchange regime was dedicated to a stable Czech Koruna and fluctuated against the Euro in within the range of +/-15% and hence met the criterion for the participation in the EMU. The inflation, as measured with the consumer price index, was 3.1% between 1999 and 2002, only 1.8% higher than for Germany, and thus close to the 1.5%-point level above the average of the three Member States with the lowest inflation rates.

The major obstacle for Hungary to meet the criteria for the accession to the EMU lies in the monetary policy. The Balassa-Samuelson effect is of marginal importance only. A readjustment of monetary policy and an explicit inflation target is necessary for Hungary and the other CEE countries which are dedicated to join the EU in 2004. This is a necessary prerequisite to stabilize the foreign exchange rate without endanger price competitiveness of the acceding countries. Therefore inflation targeting is indispensable for an accession to the EMU.

The Maastricht Treaty asks for a two years period in which applicants for the EMU have to fulfill certain minimum requirements. Monetary, foreign exchange and financial policies must be taken to prove that the applying country fits in the EMU. One obstacle to successfully pass the test period exists for those countries which are already members of the EU but not of the EU, because part of the EU-aquis requirements is a totally open capital account. Therefore the ten

new Member States which cannot opt out an accession to the EMU face the risk of speculative attacks on the new members' currencies which could cause further delay in the introduction of the Euro. Fighting off such attacks is – if at all possible – costly.

It is questionable if a test of the monetary and foreign exchange policy of acceding countries makes sense, although it is required by the Maastricht Treaty. The accession to the EMU will abolish the acceding countries' national policies they will be carried out for all Member States by the European Central Bank (ECB). This suggests that the period of the accession to the EMU should be as short as possible. Buiter and Grafe suggest to abolish the test phase before an EU-Member State is allowed to access EMU. They underscore that it is more important that governments meet the criteria for financial stability, the government deficit and the government deficit ratio, whereas a test on monetary and foreign exchange stability is not worth to take the risk of a speculative attack.[28]

The higher inflation rates in the new Member States will not pose threat on the overall stability of the Euro, because of the size of these new EMU-economies. But high inflation rates incorporate the risk of misallocation of resources. In association with a non-competitive labor market this endangers these countries' competitiveness within the EU and in international markets. Therefore a strict monetary policy and inflation target in the advent of the accession to the EMU must be pursued to adapt the acceding economies to the stable environment in the EMS and to prevent a supply push inflation induced by wage agreements which will be based on past experience on price increases.

With regard to the risk of a speculative attack on the currencies of the new Member States it is suggested to provide the opportunity for an early accession to the EMU for those economies which fulfill the financial criteria and take successful measures for the reduction of inflation. This would enable countries such as the Czech Republic to enjoy the advantages of an early accession and would create incentives for others to push adequate monetary policies to enter EMU as early as possible. The participation in the monetary union will be only in 2006 if the letter of the Maastricht Treaty will not be changed.

IMPACT OF THE PR OF CHINA ON THE EVOLUTION OF THE GREATER EUROPEAN UNION

The objectives of the creation of the EU have been since the beginning to establish an economically, politically and socially united Europe. Although during the early decades it was more a free trade area, but since 1993 with the Single Market project, which brought the introduction of the four freedoms (free movement of goods, services, capital and labor) at least an economic area has been created, which shows noteworthy differences between the Member States, but the cross-border accessibility of markets stimulates convergence.

The same is true for the ten acceding countries in 2004. Although not all markets will be liberalized simultaneously, in the long-run a convergence will take place (Graph 1). These countries cannot opt out the participation in the EMU and it was shown that a delay will be more a threat than an advantage. Therefore it is presumed that within this decade a quick introduction of the Euro and a dynamic integration of these countries in the Single Market will take place. Economic transactors already anticipated this development and companies invested to exploit advantages in new locations for production primarily tradables and with comparable intensity in the access of new markets primarily non tradables.

As a result of the integration and in concordance with the outspoken political European political objective of convergence the acceding countries will not serve as low cost locations for the production of tradable goods in a globalized world. Although wage levels are lower than in the more mature Member States they are not on such a level that these locations can compete with emerging Asian countries and the PR of China. This means that these countries that up to now are characterized by structures which fitted in the division of labor within the former CMEA have to meet the challenges of the international markets.

The sectoral investigation of FDI disclosed that within the tradable goods' industries there was a focus on the metal industry with regard to the investment per capita, high momentum in productivity and output growth. The development of other industries was much less dynamic.

With the exception of basic metals and semi-finished goods the manufacture of products of the metal industry is characterized by intense intra-sectoral linkages, high quality requirements and the input of qualified labor. Moreover much of the output is capital goods which are produced in small batches and due to customers' requirements. This means that engineering industries are so-called immobile industries, where a close contact between the R&D department and production is necessary. Therefore the opportunities for a relocation are limited. Although this is no longer true in a strict sense because of the possibilities created by new ICT, but the pattern of relocation of engineering industries' production reveals that regional linkages have not lost any importance and regional clusters provide advantages.

It is assumed that in concordance with convergence there will be a structural change of the acceding countries' economies towards the supply side structure of the current EU 15 Member States, as compared with overseas' economies . In particular in the global market for tradable goods the division of labor with non-EU trading partners will become more homogenous if one compares the external trade of the acceding economies with EU (15).

The comparison of both of these regions' foreign trade discloses noteworthy similarities. The focus on export to the PR China makes the dominant position of capital goods and transport equipment visible (Graph 2). The acceding countries show higher shares in their exports than EU (15) for the deliveries of crude materials (agricultural, chemical production and metals) and manufactured goods (leather, textiles, semi-finished from metal and non-metal materials etc.). Many products of both of these export groups are labor intensive and qualification requirements are low. With regard to chemical products and metals the acceding countries have high capacities which stem from the era of state-planned economy. They cannot be maintained in the long run, but benefit currently from the booming Chinese economy which absorbs much of the global production in primary goods. The available export levels are not sustainable because on the one hand of not sufficiently low wages and on the other the erection of new capacities for the production of primary goods in the PR of China. Capacities must shut down.

A closer look makes known some differences in exports. Within the capital goods

industries the acceding countries exports to China are driven by road vehicles and power generating equipment which command a share of more than one tenth each, whereas EU (15) exports contain around 5% for each of these subgroups, but the EU is extremely strong in telecommunication exports. These exports deliveries contain above all equipment for digital infrastructure for fixed and mobile telephone networks.

The Chinese exports to the EU and the acceding countries are dominated by ICT, electrical machinery. (Graph 3) The European imports of telecommunication equipment comprise mobiles and other consumer goods as a part of international division of labor in this sector. Many of these goods have been classified as high-tech in scientific literature, but their assemblage is low-wage manufacture and carried out in emerging Asian countries. Within Europe Estonia and to a certain extent Scotland and Ireland are focusing on the manufacture of such mass products. The related industries can be characterized as “mobile” industries. A close regional relationship between R&D and the production is not necessary. The upstream and downstream linkages along the value added chain are of lesser importance than in the metal industries. This means that production relocation is highly sensitive to wage differentials. These products are not in the focus of the European industrial production and China as an emerging supplier in the global markets is not a major challenge to Europe.[29]

The traditional strength of the PR of China is in low-tech goods, toys, clothing etc. Its general commonality with Chinese ICT exports is volume production of standardized goods. More than 40% of total Chinese deliveries to the acceding countries comprise clothing and footwear. Toys have not yet reached a noteworthy market penetration in these countries. The Chinese exports of clothing and footwear to the EU (15) are by far less important, as a share of total Chinese exports it is between 10 and 15%. It can be assumed that the demand for high quality textiles and clothes is more important in total market in the richer EU (15) countries and these originate from Turkey, North-Africa, Spain, Italy and Portugal.

Winding up the information on the European-Chinese trade some similarities have been identified between the acceding countries and the EU (15) which indicates strengths and

weaknesses. Generally speaking, the European economy has some difficulties as a location for the production of serial products if higher wages are not justified by higher qualification. This is why labor market rigidities have hampered the erection of production sites for advanced ICT equipment already during the 1980s and 1990s at least in some of the more mature continental European countries. The focus of intern-EU manufacture of ICT is on niche products and relocation is more an evolutionary process than a challenge.

With regard to the creation of the Single Market and the political objective of convergence a structural change in the manufacture of tradable goods can be expected for the acceding countries. The higher capacities than in the EU (15) for the manufacture of crude material, semi-finished goods, textiles, apparel etc. will be reduced, and the structure of the production of tradables will come within reach of the EU (15), where advantages are provided by clustering. Strong growth will concentrate in a couple of industries only, in the metal sector, but simultaneous growth of output and productivity will prevent an increase in employment.[30] The closure of plants in low-wage industries will be compensated by new capacities in Asia, in particular the PR China.

The focus on the manufacture products which require strong intra- and intersectoral linkages might be perceived as a comparative advantage, but it is a small segment to maintain the current share of acceding countries in international markets for manufactured goods. Since 2001 many product markets have come under pressure and put stress on the acceding countries in the transition process. The problem is to a lesser extent the exchange rate of the Euro against the US-$, but against the Japanese Yen and the Renminbi. A deflationary trend in the PR of China linked to a depreciation of the Renminbi, which is pegged to the US-$, causes distortions in the international division of labor.

These projected structural changes should take place in a framework which supports an evolutionary process, bolstered by an adequate economic policy. The national institutions have to be adjusted to the needs of globalization, to further micro-economic adjustments. Moreover international framework conditions have to be adjusted to the needs of a global economy. This

means in particular for the "real" economy with its production of goods and services a stable environment which provides accurate signals on factor prices. Distortions in the financial markets and foreign exchange provoke a misallocation of resources.

As outlined in this paper the challenges for the acceding countries from their integration into the EU are manageable, supporting economic growth, although the European aquis asks for a comprehensive adjustment of national institutions. But from a global point of view one of the major problems for the integration of the acceding countries into the EU stem from the PR China success boosted by a devaluation of 40% against the Euro which even took place in combination with deflation. This situation incorporates the risk of unmanageable tensions in the most concerned industries and endangers the difficult process to liberalize global markets.[31] Protectionist initiatives already emerge.

One of the problems of the current distortion in international trade emerges from the PR Chinese exchange rate regime, the Renminbi's peg to the US-$[32]. This peg can be understood as the importance of Chinese foreign exchange reserves in US-$, which - with 270 billion US-$ - is second in the global ranking behind Japan. Bilateral exchange rate variation between the Japanese Yen and the US-$ on the one hand and the Euro and the US-$ on the other have a direct impact on the Renminbi exchange rate, which might not be justified by the bilateral relations. Therefore an appreciation of the Chinese currency will not solve the problem induced by a peg to one currency only. A basket of currency is better suited to the multilateral relationships of China in the global economy.

Conclusions

This integration of the CEE economies acceding to the EU (15) has been propelled by foreign direct investment. The vertical inward investment has been focused primarily on tradable goods industries and had an immediate effect on growth of output and productivity. The influx of horizontal FDI has been dedicated above all on non-tradable goods industries. Although intensity - as measured by FDI per capita- was similar as compared to vertical FDI the

impact on growth of output and productivity in no-tradable industries was poor. As explanation for this specific pattern differences in the objectives of investors have been discussed. Moreover high growth momentum in exports drove the progress in the tradable goods industries. In the non-tradable goods industries the investors purchase above all market shares and up to now they are not exposed to full competitive pressure, because the liberalization of many domestic markets, in particular in service, will only take place in the years to come. It can be expected that then the opportunities of advanced ICT will be fully exploited to meet the challenge. In opposite to the original assumptions of Balassa-Samuelson nowadays technology and management provide opportunities for string productivity gains even in service industries.

Another important assumption of the Balassa-Samuelson model which does not hold is the competitive labor market and labor mobility. The harmonization of the evolution of the wages has been based on some indispensable factors, such as to participate in productivity gains, to maintain the standard of living and to maintain relative social standards. While for tradable goods industries the business environment provides some explanation for the increase of wages for the non-tradable industries no correlation was found. This indicates that deficiencies in the labor market are above all prevalent in segments related to non-tradable industries.

The empirical investigation has confirmed the effects described by Balassa-Samuelson, but there are some doubts that the assumption underlying the model holds. Future research should spend more effort on the verification of the model's assumptions, in particular the likely explanatory variable "growth" for productivity, which has not been taken into account in most of the investigations.

Many tradable goods industries have quickly narrowed the technological gap and nearly caught up to the EU level. This means that productivity differentials which in any case are an important driver of inflation have come down recently will be further reduced in the years to come. A comparison with Germany makes visible that there is no longer an inflationary potential based on the Balassa-Samuelson effect. But differences in the monetary policy and exchange rate regimes suggest that the participation to the EMU can induce distortions in the

transition process. For instance this is true for Hungary with its high inflation rates, whereas for the Czech Republic the introduction of the Euro will be less problematic.

The acceding countries should immediately introduce adequate monetary and exchange rate policies to fulfill the requirements for an early accession to the EMU. Because after 1 May 2004 they are new Member States of the EU, and in due line with the EU aquis they must open their capital account. This is a phase where speculative attacks can provoke tensions in the transition process. In accordance with the Maastricht Treaty these countries have to pass a two years test phase before they can enter. From an economic point of view this makes no sense, because monetary policy will then be carried out by the ECB and there will be no longer a national exchange rate policy. As soon as the inflation rate will have converged to the EU-level and financial requirements will be met, an accession should take place as soon as possible. But this would mean that a political decision is necessary to abolish the necessity of a two years' test phase.

The integration of the acceding countries into the EU means that they join one of the leading and most developed economic areas. As a result the CEE countries will no longer be able to compete in markets for low-wage products and mass production. This means that there is no future for many of the capacities, which were of importance as long as these countries were integrated in the former CMEA. A comparison with the EU disclosed that there are some similarities and opportunities for the creation of new more competitive clusters than in the past. In particular in the metal industries manufactured strong intrasectoral linkages currently evolve.

But CEE countries remain exposed to low-wage competition in mass production and have to meet the challenge of emerging countries which possess more adequate framework conditions for production. More recently the competitive pressure has even increased because of the growing strength of the Euro. The CEE countries will have to accelerate the lay off capacities, which cannot be economically operated in the long-run. This puts stress on the countries which are currently in a fragile process of transition.

Much of the difficulties have been caused by the PR China and its high growth momentum

in exports. The depreciation of the Renminbi in combination with a domestic deflationary tendency incorporates the risk of misleading signals to economic actors. In particular CEE countries suffer from the current distortions in the exchange rates, because their currencies regimes are biased towards the Euro. This development incorporates the threat to distort the transition process, and the intensity of the problem is linked to the Chinese foreign exchange regime, the peg to the US-$, which is not adequate to the multilateral trade relations of the PR China. Although there is a predominance of the US-$ in the Chinese foreign exchange reserves, it is suggested to give up the peg to the US-$ and link the Renminbi to a basket of globally important currencies to take into account the complexity of the global economy. In the long-run it will be more important to moderate distortions by exchange rate variations by a more adequate exchange rate regime.

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[4] The Vienna Institute for International Economic Studies (ed.) (2003), Countries in Transition │2003, wiiw Handbook of Statistics, Vienna, 2003

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[6] This differentiation might not prove to be true in any case. In particular if there exist strong tarif or non-tarif barriers to trade the primary objective even in tradable goods market can be the purchase of market shares. In the case of acceding countries and the free movement of goods, services, capital and labor heavy investment in production capacitites is not a necessary prerequisite for market access.

[7] In real life a clear cut discrimination of vertical and horizontal FDI is the exception to the rule. E.g., the purchase of Skoda by VW was as well an investment in the decomposition of production as the procurement of a brand and a sales network to get a strong foothold in an emerging car market. An example for a clear vertical FDI is the investment of Audi in Györ, Hungary in the manufacture of engines which are assembled in Ingolstadt, Germany.

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Rashmi Banga, Do Productivity Spillovers Differ from Japanese and US Firms, Indian Council for Research on International Economic Relations, Working Paper 112, New Delhi, September 2003.

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[16] Taking into account that privatization of state-held companies is linked to guarantees to employees hardly productivity increases will be gained in a stagnant market.

[17] Robert J. Gordon, High-Tech Innovation and Productivity Growth: Does Supply Create its own Demand? NBER Working Paper No. 9437, January 2003.

[18] Empirical studies on the Balassa-Samuelson effect do not investigate the impact of growth. See: Dubravko Mihaljek, Marc Klau, The Balassa-Samuelson Effect in central Europe: a disaggregated analysis, in: BIS Working Papers No 143, October 2003, p. 4.

[19] For a comprehension and the description of the applied explanatory variables in more recent studies see: Dubravko Mihaljek, Marc Klau, The Balassa-Samuelson Effect in central Europe: a disaggregated analysis, in: BIS Working Papers No 143, October 2003, p. 4.

[20] Jack Strauss, Relative Price Determination in the Medium Run: The influence of Wages, Productivity and International Prices, in Southern Economic Journal 1998, 65(2), pp 223-244.

[21] Most of the relocation remains in Europe. This is in particular true in the cluster comprising metal industries. In other industries, such as textile, clothing, toys, basic chemicals and plastics, a relocation to the Far East and the PR of China takes place. For the outlook on employment in CEE manufacturing see: WIIW (ed.),

[22] This market deficiency has been observed in the short and medium run. It contradicts the common neo-classical assumptions on the equality of marginal costs and marginal productivity of labor. There will be two alternatives in the long- run: The government can work to improve the functioning of the market and lay foundation for a more efficient allocation of resources. In the deficient labor market environment the cartelized wage settlements will weaken those industries, where the bargaining parties do not stick to necessary economic requirements. This will induce a decline of concerned industries. In the long-run labor input will come within reach of the neo-classical assumptions.

[23] Micro-economic empirical studies on the impact of the New Economy disclose strong gains in productivity in mature industrialized nations, above all for the US, but also in Europe:

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[29] China has become a challenge for the US manufacturing industry. Since the breakdown of the so-called New Economy much of the low-tech manufacture and assemblage has been relocated to Asia.

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TABLE 1 BALASSA-SAMUELSON EFFECT IN THE TRADABLE GOODS AND NON-TRADABLE GOODS SECTOR

	Hungary			Czech Republic		
	1994 - 2000	**1994 - 1996**	**1997 - 2000**	**1995 - 2001**	**1995 - 1997**	**1998 - 2001**
	Non-tradable goods					
Monthly gross wages						
Services	17.2	19.9	15.3	12.4	16.3	9.6
Total	15.4	19.7	12.3	11.4	15.5	8.5
Total ex public adm.	16.9	19.7	14.9	11.7	15.6	8.9
Labour productivity						
Services	-0.7	0.3	-1.4	-1.6	-6.4	2.2
Total	-0.1	0.2	-0.3	-1.3	-4.1	0.9
Total ex public adm.	-0.4	-0.5	-0.3	-1.7	-5.9	1.7
Prices						
Services	19.2	25.5	14.8	11.5	18.5	6.5
Total	18.8	24.4	14.8	9.4	13.5	6.4
Total ex public adm.	18.7	24.2	14.8	9.5	14.0	6.2
	Tradable Goods					
Monthly gross wages						
Capital goods ind.	18.9	23.2	15.7	12.1	17.3	8.3
Total ex electricity	19.1	22.8	16.3	11.1	15.5	7.9
Total	18.8	22.6	16.1	11.1	15.5	7.9
Labour productivity						
Capital goods ind.	12.3	15.0	10.4	10.9	20.0	4.5
Total ex electricity	4.1	4.7	3.6	7.4	12.0	4.1
Total	3.8	4.1	3.6	6.1	9.1	3.9
Prices						
Capital goods ind.	12.3	14.3	10.8	4.4	5.8	3.4
Total ex electricity	13.9	17.1	11.5	4.4	5.8	3.4
Total	14.2	17.4	11.9	4.4	5.8	3.4

Source: National Statistical Bureaus, Ifo Institute.

TABLE 2 GROWTH IN THE TRADABLE GOODS AND NON-TRADABLE GOODS SECTOR

	Hungary			Czech Republic		
	1994 - 2000	**1994 – 1996**	**1997 - 2000**	**1995 - 2001**	**1995 - 1997**	**1998 - 2001**
	Non-tradable goods					
Real production						
Services	2.3	1.2	3.2	-2.1	-5.1	0.2
Total	1.3	0.2	2.1	-1.0	-1.4	-0.7
Total ex public adm.	1.7	1.4	2.0	-1.0	-1.5	-0.7
Employees						
Services	2.4	0.9	3.5	0.6	2.8	-1.0
Total	2.2	0.0	3.9	-0.3	1.0	-1.3
Total ex public adm.	1.6	0.8	2.2	0.0	2.4	-1.7
	Tradable Goods					
Real production						
Capital goods ind.	28.4	23.9	31.9	13.5	19.5	9.3
Total ex electricity	14.4	10.6	17.3	6.6	8.1	5.5
Total	12.5	9.0	15.1	5.7	6.7	5.1
Employees						
Capital goods ind.	6.6	4.5	8.1	-0.8	-3.4	1.2
Total ex electricity	4.4	3.6	5.0	-1.8	-2.9	-1.0
Total	3.6	3.2	4.0	-1.8	-2.8	-1.0

Source: National Statistical Bureaus, Ifo Institute.

TABLE 3 INTENSITY IN INWARD INVESTMENT BY SECTOR

Czech Republic				
FDI per employee and year	**1994 - 2001**		**1994 - 1997**	**1998 - 2001**
	CZK	**Euro**	**CZK**	**CZK**
Non-tradables				
Services	29787	846.3	4959	57102
Total	41522	1179.7	6491	80444
Total ex public adm.	24672	701.0	4554	46405
Tradables				
Capital goods ind.	34505	980.3	12226	65412
Total ex electricity	32139	913.1	14196	58116
Total	35707	1014.5	17023	63318
Hungary				
Total amount of FDI per employee	**up to 2001**		**1994 - 1997**	**1998 - 2001**
	HUF	**Euro**	**HUF**	**HUF**
Non-tradables				
Services	1424123	7346	-	-
Total	2128453	10980	-	-
Total ex public adm.	1243622	6415	-	-
Tradables				
Capital goods ind.	5198058	26814	-	-
Total ex electricity	2747985	14176	-	-
Total	2826061	14578	-	-

Source: National Statistical Bureaus, Ifo Institute.

TABLE 4 CORRELATION OF OUTPUT, FDI, WAGES AND PRODUCTIVITY

Non-tradable goods		
Hungary		
Variable 1	**Variable 2**	**Correlation a)**
Δ productivity	Δ wages	**0.277**
Δ output	Δ productivity	**-0.640**
Δ inward investment	Δ productivity	**0.292**
Czech Republic		
Δ productivity	Δ wages	**0.197**
Δ output	Δ productivity	**0.573**
Δ inward investment	Δ productivity	**0.455**
Tradable goods		
Hungary		
Variable 1	**Variable 2**	**Correlation a)**
Δ productivity	Δ wages	**0.411**
Δ output	Δ productivity	**0.982**
Δ inward investment	Δ productivity	**-0.685**
Czech Republic		
Δ productivity	Δ wages	**0.698**
Δ output	Δ productivity	**0.728**
Δ inward investment	Δ productivity	**-0.365**

a) Pearson's correlation coefficient r.

Source: National Statistical Bureaus, Ifo Institute.

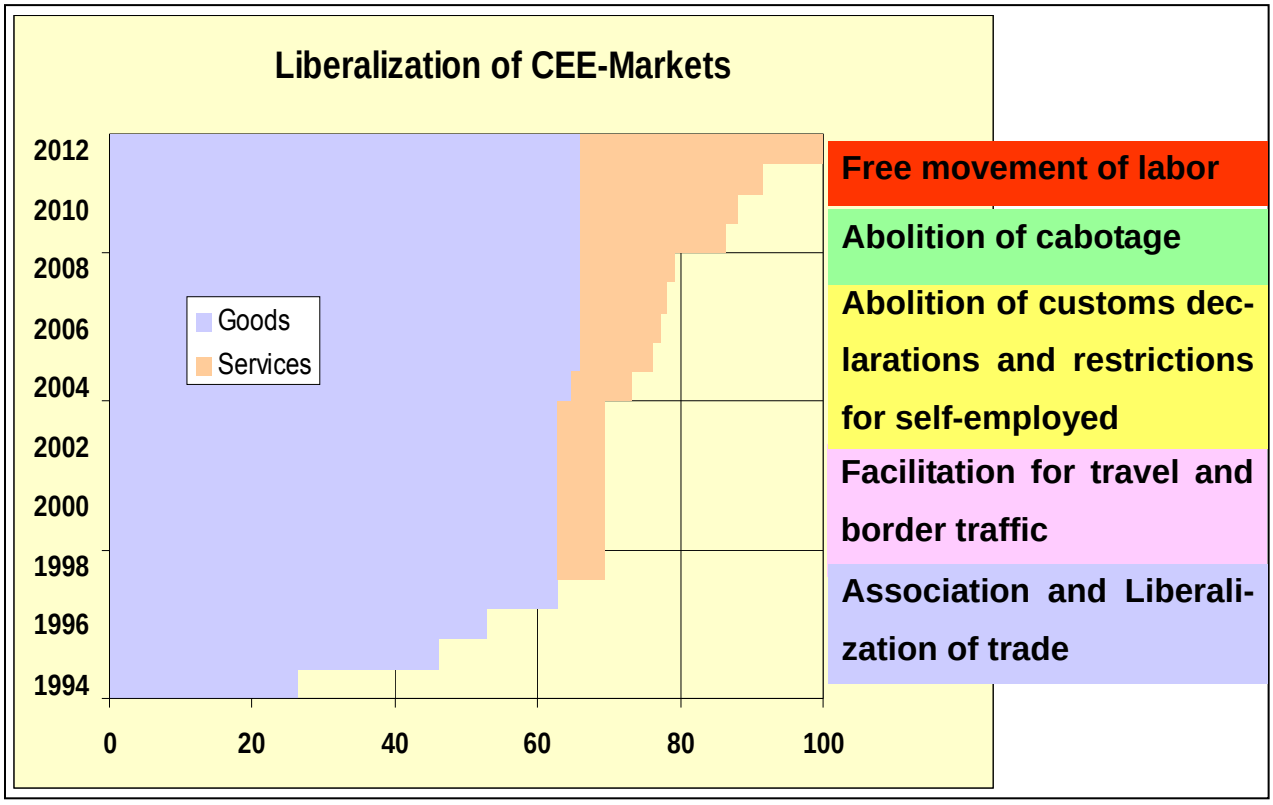
TABLE 5 BALASSA-SAMUELSON EFFECT IN COMPARISON WITH GERMANY

	Average yearly change rates in % (1995 - 2001) [a]							
	Productivity		Wages		Prices		Differences	
	Trad. [a]	Non-t. [b]	Trad. [a]	Non-t. [b]	Trad. [a]	Non-t. [b]	Productivity	Prices
Czech Republic	6.1	-1.7	11.1	11.7	4.4	9.5	7.7	5.1
Hungary	3.8	-0.4	18.8	16.9	14.2	18.7	4.2	4.5
Germany	2.3	1.8	2.8	1.2	1.0	-0.2	0.5	-1.2
	average yearly change rates in % (1998 - 2001) [a]							
Czech Republic	3.9	1.7	7.9	8.9	3.4	6.2	2.2	2.8
Hungary	3.6	-0.3	16.1	14.9	11.9	14.8	3.9	2.9
Germany	1.6	1.5	2.5	1.3	0.7	-0.9	0.1	-1.6

a) Latest year for Hungary 2000; - b) Total tradable goods ex. electricity; - c) Total non-tradable goods ex. public administration.

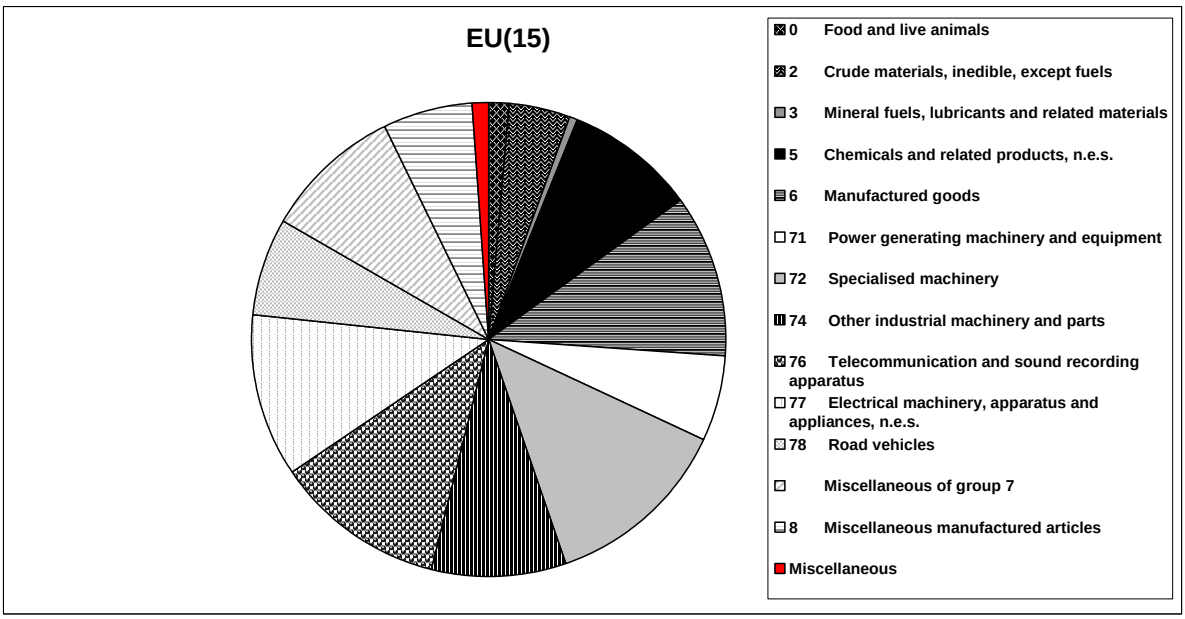
Source: National Statistical Bureaus, Ifo Institute.

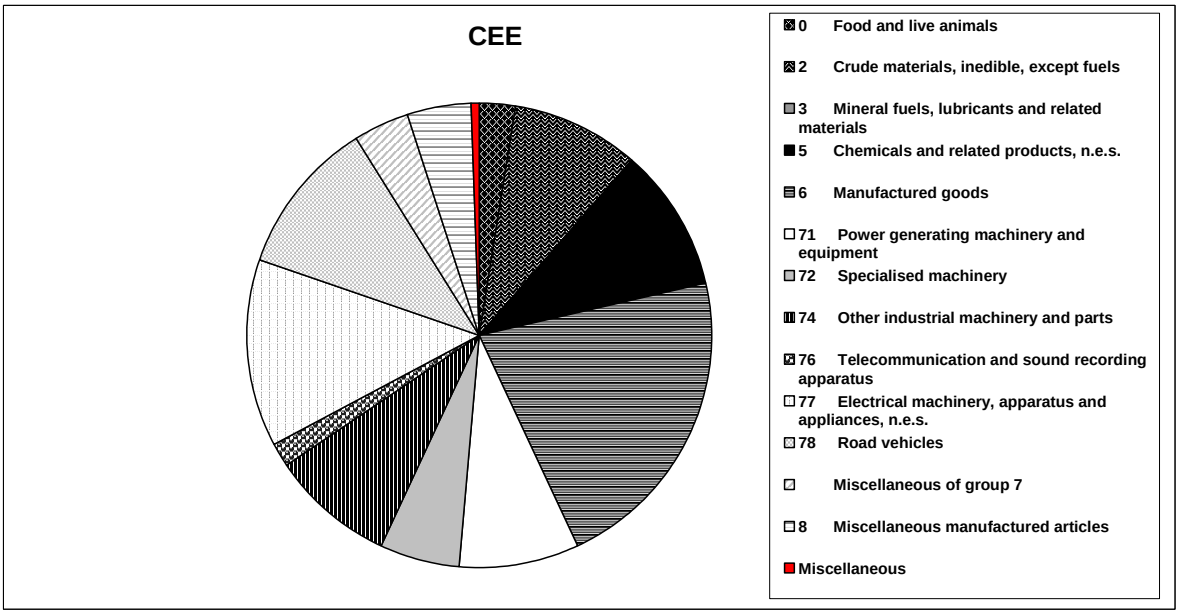
GRAPH 1 STEPWISE INTEGRATION OF ACCEDING COUNTRIES



Source: Ifo Institute for Economic Research.

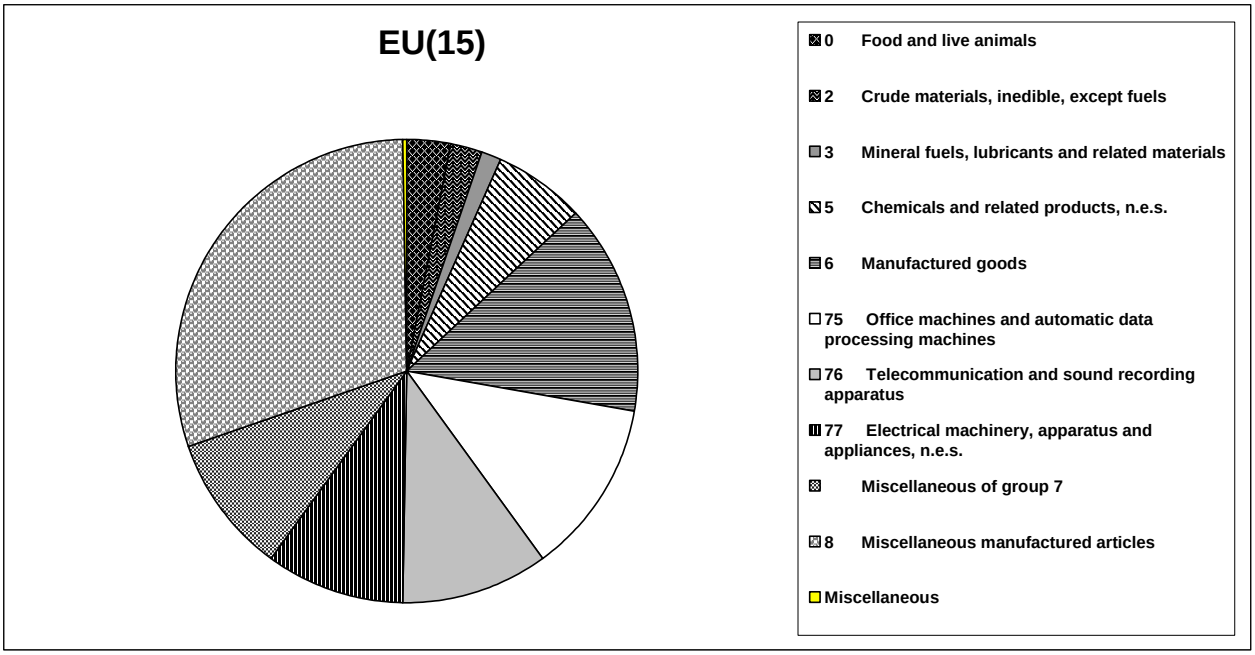
GRAPH 2 EUROPEAN EXPORTS TO THE PR CHINA (1995 – 2001)

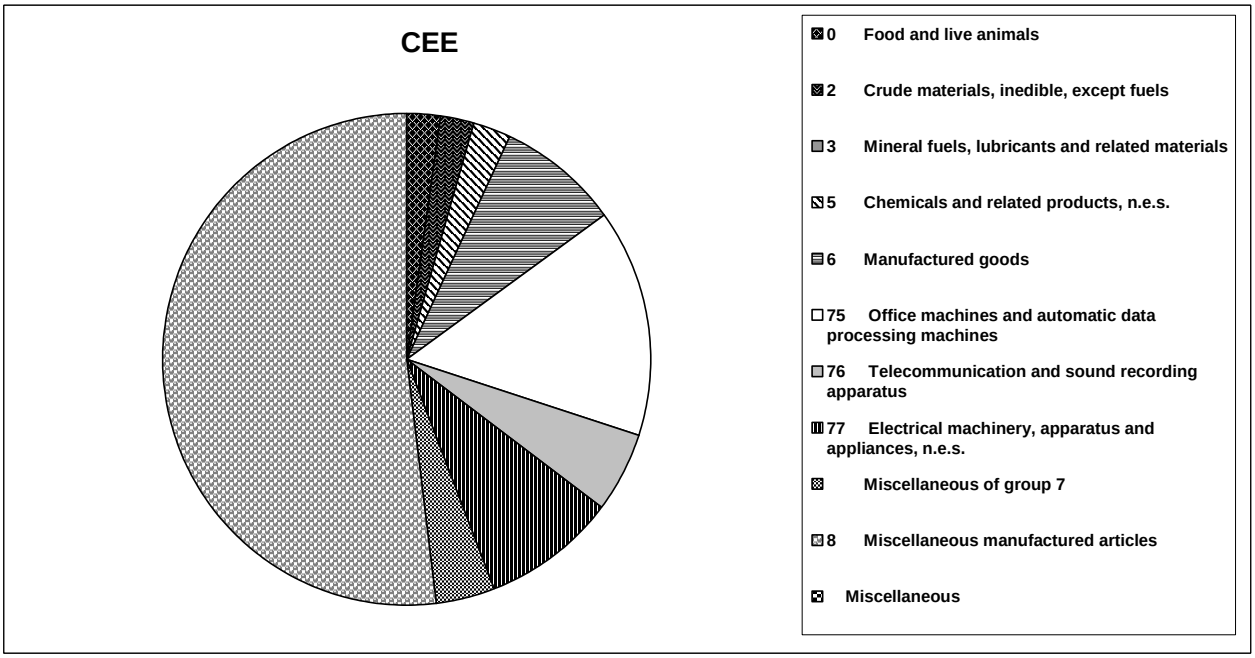




Source: OECD Trade Statistics, Ifo Institute.

GRAPH 3 EUROPEAN IMPORTS FROM THE PR CHINA (1995 – 2001)





Source: OECD Trade Statistics, Ifo Institute.

Annex

TABLE A 1 BALASSA-SAMUELSON EFFECT IN THE NON-TRADABLE GOODS INDUSTRIES

	Hungary			Czech Republic		
	1995 - 2001	1995 - 1997	1998 - 2001	1995 - 2001	1995 - 1997	1998 - 2001
	Non-tradable Goods					
Monthly gross wages						
Agriculture, hunting, forestry and fishing	16.6	19.7	14.3	11.5	15.5	8.5
MINING AND QUARRYING	16.7	21.3	13.3	11.5	15.5	8.5
Food products, beverages and tobacco	16.9	19.7	14.9	10.9	14.6	8.2
Electricity, Gas, Water	18.3	21.8	15.7	11.5	15.5	8.5
Construction	15.7	17.8	14.2	9.8	13.8	6.9
Trade, hotels and restaurants	15.7	18.3	13.8	11.8	15.0	9.5
Transport, storage, telecommunications	18.4	21.7	16.0	13.0	18.4	9.1
Financial intermediation 3)	19.4	22.4	17.3	13.4	15.6	11.8
Real estate, renting & business activities	19.0	19.1	18.8	11.5	16.6	7.8
Education	16.9	19.7	14.9	10.2	14.2	7.2
Health and social work	16.9	19.7	14.9	10.9	14.1	8.6
Oth. community, social & personal serv.	16.9	19.7	14.9	11.2	16.9	7.2
Labour productivity						
Agriculture, forestry, fishing	0.0	0.0	0.0	9.1	7.5	10.3
Mining and quarrying	3.2	2.0	4.1	3.9	6.0	2.4
Food products, beverages and tobacco	0.5	-3.3	3.6	-10.1	-17.7	-4.0
Electricity, gas, water supply	4.7	1.7	7.1	0.3	-3.0	2.8
Construction	-3.0	-7.0	0.1	0.9	1.3	0.6
Wholesale, retail trade, repair motor veh.	-3.2	-3.9	-2.6	2.0	-4.5	7.1
Transport, storage, telecommunications	3.7	4.9	2.8	0.9	1.4	0.5
Financial intermediation	0.0	3.2	-2.3	-14.3	-24.5	-5.7
Real estate, renting & business activities	-4.4	-3.6	-5.1	-3.0	-4.7	-1.7
Education	4.7	1.7	7.1	-5.0	-2.6	-6.8
Health and social work	4.7	1.7	7.1	-3.6	-0.5	-5.9
Oth. community, social & personal serv.	4.7	1.7	7.1	-4.4	-1.5	-6.5
Prices						
Agriculture, hunting, forestry and fishing	15.9	16.3	15.5	3.7	6.3	1.8
Mining and Quarrying	15.9	16.3	15.5	4.4	5.8	3.4
Food products, beverages and tobacco	16.3	21.5	12.5	7.8	5.8	9.3
Electricity, Gas, Water	19.1	19.2	19.0	4.4	5.8	3.4
Construction	19.2	25.5	14.8	7.9	11.1	5.5
Wholesale, retail trade, repair motor veh.	19.2	25.5	14.8	8.6	13.7	5.0
Transport, storage, telecommunications	19.2	25.5	14.8	6.9	12.8	2.6
Financial intermediation	19.2	25.5	14.8	25.3	42.0	14.1
Real estate, renting and business activities	19.2	25.5	14.8	10.7	12.8	9.2
Education	19.2	25.5	14.8	12.0	13.7	10.7
Health and social work	19.2	25.5	14.8	12.0	13.7	10.7
Other community, social and personal services	19.2	25.5	14.8	12.0	13.7	10.7

Source: National Statistical Bureaus, Ifo Institute.

TABLE A 2 BALASSA-SAMUELSON EFFECT IN THE TRADABLES INDUSTRIES

	Hungary			Czech Republic		
	1995 - 2001	1995 - 1997	1998 - 2001	1995 - 2001	1995 - 1997	1998 - 2001
	Tradable Goods					
Monthly gross wages						
Textiles and textile products	17.0	21.0	14.1	9.1	12.4	6.7
Wood and wood products	14.7	19.9	11.1	9.9	14.3	6.7
Chemicals, chemical prod. & man-made fibres	20.4	24.5	17.4	11.8	16.7	8.3
Nonmetallic products	18.4	22.5	15.3	11.4	16.3	7.8
Basic metals and fabricated metal products	16.3	21.8	12.4	10.3	14.5	7.2
Machinery and equipment n.e.c.	18.1	22.3	14.9	11.7	16.9	8.0
Electrical and optical equipment	18.5	22.1	15.9	11.8	17.5	7.7
Transport equipment	20.6	27.0	16.1	13.0	18.2	9.2
Manufacturing n.e.c.	15.8	20.4	12.4	9.8	13.1	7.3
Electricity, Gas, Water	18.3	21.8	15.7	11.5	15.5	8.5
Labour productivity						
Textiles and textile products	-2.8	-3.4	-2.3	4.3	3.4	5.1
Wood and wood products	3.3	1.5	4.8	2.8	-1.0	5.6
Chemicals, chemical prod. & man-made fibres	-12.5	-7.7	-16.0	8.9	17.9	2.5
Other non-metallic mineral products	10.3	9.3	11.1	6.2	15.2	-0.1
Basic metals and fabricated metal products	7.2	11.0	4.5	4.7	4.9	4.5
Machinery and equipment n.e.c.	6.4	6.8	6.2	8.9	13.2	5.7
Electrical and optical equipment	10.8	15.3	7.5	11.7	26.5	1.7
Transport equipment	21.2	26.1	17.6	12.9	24.6	4.8
Manufacturing n.e.c.	-1.9	-2.9	-1.1	9.0	18.3	2.5
Electricity, gas, water supply	4.7	1.7	7.1	0.3	-3.0	2.8
Prices						
Textiles, wearing apparel, and leather	15.8	18.6	13.7	4.4	5.8	3.4
Wood, paper and publishing	15.3	21.6	10.8	4.4	5.8	3.4
Refined petroleum and chemicals	20.6	19.1	21.8	4.4	5.8	3.4
Nonmetallic products	12.3	14.3	10.8	4.4	5.8	3.4
Basic metals and metal products	14.9	19.5	11.6	4.4	5.8	3.4
Machinery and equipment	12.3	14.3	10.8	4.4	5.8	3.4
Electrical and optical equipment	12.3	14.3	10.8	4.4	5.8	3.4
Transport equipment	12.3	14.3	10.8	4.4	5.8	3.4
Recycling and other manufacturing	15.5	18.5	13.3	4.4	5.8	3.4
Electricity, gas, and water supply	19.1	19.2	19.0	4.4	5.8	3.4

Source: National Statistical Bureaus, Ifo Institute.

TABLE A 3 GROWTH OF THE NON-TRADABLES INDUSTRIES

	Hungary			Czech Republic		
	1995 - 2001	1995 - 1997	1998 - 2001	1995 - 2001	1995 - 1997	1998 - 2001
	Non-tradable Goods					
Real production						
Agriculture, hunting, forestry and fishing	0.0	0.0	0.0	1.4	1.6	1.2
Mining and Quarrying	-8.8	-7.6	-9.8	-3.8	-3.5	-4.0
Food products, beverages and tobacco	1.2	3.1	-0.2	-0.9	8.9	-7.7
Electricity, Gas, Water	-1.1	0.8	-2.5	1.3	-0.6	2.7
Construction	1.8	1.3	2.1	1.6	4.5	-0.5
Trade, hotels and restaurants	0.3	-2.2	2.3	1.4	-0.5	2.8
Transport, storage, telecommunications	3.4	2.0	4.5	2.3	0.6	3.7
Financial intermediation 3)	1.5	2.7	0.7	-17.0	-25.2	-10.2
Real estate, renting & business activities	4.3	4.6	4.0	-1.2	0.3	-2.4
Education	-1.3	-7.2	3.4	-4.7	-5.3	-4.1
Health and social work	0.1	-3.3	2.8	-3.5	-2.5	-4.2
Oth. community, social & personal serv.	-1.9	-6.2	1.4	0.6	1.3	0.1
Employees						
Agriculture, forestry, fishing	-2.9	-1.9	-3.6	-5.6	-5.6	-5.6
Mining and quarrying	-11.2	-8.9	-12.9	-5.3	-3.6	-6.6
Food products, beverages and tobacco	-1.7	0.3	-3.1	0.7	6.5	-3.4
Electricity, gas, water supply	-3.7	0.0	-6.4	-1.6	-2.2	-1.2
Construction	3.2	1.9	4.2	-0.7	2.1	-2.8
Wholesale, retail trade, repair motor veh.	2.6	1.0	3.8	0.6	3.8	-1.8
Transport, storage, telecommunications	-0.4	-1.9	0.6	-0.2	1.0	-1.2
Financial intermediation	-1.2	-0.2	-2.0	3.3	5.9	1.4
Real estate, renting & business activities	8.6	7.7	9.3	0.9	1.4	0.6
Education	-0.8	-3.1	1.0	-0.4	-0.5	-0.4
Health and social work	0.6	0.9	0.3	1.3	-0.8	3.0
Oth. community, social & personal serv.	-2.4	-2.6	-2.2	1.4	-0.3	2.7

Source: National Statistical Bureaus, Ifo Institute.

TABLE A 4 GROWTH OF THE TRADABLES INDUSTRIES

	Hungary			Czech Republic		
	1995 - 2001	1995 - 1997	1998 - 2001	1995 - 2001	1995 - 1997	1998 - 2001
	Tradable Goods					
Real production						
Textiles and textile products	1.6	-1.0	3.6	0.0	-1.3	1.0
Wood and wood products	5.5	3.2	7.2	6.8	8.8	5.4
Chemicals, chemical prod. & man-made fibres	-0.2	2.6	-2.2	5.8	6.6	5.2
Nonmetallic products	9.3	11.3	7.7	3.8	2.8	4.6
Basic metals and fabricated metal products	8.8	10.9	7.2	0.0	-0.4	0.4
Machinery and equipment n.e.c.	7.6	7.4	7.7	4.6	11.7	-0.4
Electrical and optical equipment	34.7	28.2	39.7	17.7	24.1	13.1
Transport equipment	33.2	34.7	32.1	17.6	23.9	13.1
Manufacturing n.e.c.	2.8	-1.9	6.5	8.2	12.7	4.9
Electricity, Gas, Water	-1.1	0.8	-2.5	1.3	-0.6	2.7
Employees						
Textiles, wearing apparel, and leather	3.3	5.7	1.5	-4.4	-4.7	-4.2
Wood and wood products	0.3	0.8	-0.1	0.7	4.2	-1.8
Chemicals, chemical prod. & man-made fibres	9.9	7.2	11.9	-7.4	-11.9	-3.9
Other non-metallic mineral products	-0.4	3.0	-2.9	-0.3	-0.8	0.1
Basic metals and fabricated metal products	0.8	1.5	0.4	-2.2	-1.8	-2.6
Machinery and equipment n.e.c.	-0.4	0.0	-0.7	-5.0	-5.9	-4.4
Electrical and optical equipment	12.0	9.4	13.9	4.5	2.2	6.1
Transport equipment	4.5	2.2	6.2	0.0	-4.9	3.7
Manufacturing n.e.c.	2.3	-0.3	4.3	0.6	1.2	0.1
Electricity, gas, water supply	-3.7	0.0	-6.4	-1.6	-2.2	-1.2

Source: National Statistical Bureaus, Ifo Institute.

TABLE A 5 INWARD INVESTMENT IN NON-TRADABLE GOODS INDUSTRIES

Czech Republic			
FDI per employee and year	**1994 - 2001** **CZK**	**1994 - 1997** **CZK**	**1998 - 2001** **CZK**
Agriculture, hunting, and forestry	1283	543	2344
Mining and quarrying	24820	4460	51385
Food and tobacco	35502	17021	62859
Electricity, gas, and water supply	80964	52146	130023
Construction	5067	5094	6306
Trade, hotels and restaurants	22503	5212	45420
Transports, Communication	33792	26893	49138
Financial intermediation	229528	44139	472300
Real estate and business activities	36793	2176	78431
Education	72	32	97
Health and social work	1000	500	1250
Other social and personal services	6044	1514	10570
Hungary			
Total amount of FDI per employee	**up to 2001** **HUF**	**1994 - 1997** **HUF**	**1998 - 2001** **HUF**
Agriculture, hunting, and forestry	231300	-	-
Mining and quarrying	690788	-	-
Food and tobacco	911902	-	-
Electricity, gas, and water supply	3554642	-	-
Construction	336143	-	-
Trade, hotels and restaurants	1061244	-	-
Transports, Communication	2169014	-	-
Financial intermediation	7480875	-	-
Real estate and business activities	3436563	-	-
Education	3243	-	-
Health and social work	20024	-	-
Other social and personal services	259066	-	-

Source: National Statistical Bureaus, Ifo Institute.

TABLE A 6 INVESTMENT IN TRADABLE GOODS INDUSTRIES

Czech Republic			
FDI per employee and year	**1994 - 2001 CZK**	**1994 - 1997 CZK**	**1998 - 2001 CZK**
Textiles, wearing apparel, and leather	10324	1690	21540
Wood, paper and publishing	39181	28337	59820
Refined petroleum and chemicals	93630	43388	167280
Nonmetallic products	50559	24543	89214
Basic metals and metal products	20897	8675	38344
Machinery and equipment	50195	12226	100712
Recycling and other manufacturing	17533	14413	25036
Electricity, gas, and water supply	80964	52146	130023
Hungary			
Total amount of FDI per employee	**up to 2001 HUF**	**1994 - 1997 HUF**	**1998 - 2001 HUF**
Textiles, wearing apparel, and leather	1522598	-	-
Wood, paper and publishing	959144	-	-
Refined petroleum and chemicals	2124297	-	-
Nonmetallic products	1845913	-	-
Basic metals and metal products	2566855	-	-
Machinery and equipment	5172121	-	-
Recycling and other manufacturing	1329253	-	-
Electricity, gas, and water supply	3554642	-	-

Source: National Statistical Bureaus, Ifo Institute.